

REMARKS

Claims 23-48 are pending in the present application. The Office Action indicates that Claim 48 is objected to but the claim would be allowable if rewritten in independent form. Claims 23, 31, 32 and 34 are rejected under 35 U.S.C. § 112, second paragraph, for lack of a proper antecedent basis. Claims 23-30 and 37 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Blayo et al., U.S. Patent No. 5,739,909 ("Blayo"). Claims 33 and 35-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blayo in view of Abidi et al., U.S. Patent No. 5,539,241 ("Abidi"). Claims 38-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blayo in view of Abidi and in further view of Curran, U.S. Patent No. 5,126,284 ("Curran"). Claims 43-47 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nasserbakht, U.S. Patent No. 6,143,614 ("Nasserbakht") in view of Blayo.

The objection to the drawings should be withdrawn

The drawings are objected to under 37 C.F.R. 1.83(a) for failing to show every feature of the invention specified in the claims. Specifically, the Examiner states "the metallized surface on the surface of the sacrificial layer must be shown." Applicants respectfully submit that the objection is inappropriate since Applicants do not claim "a metallized surface on the surface of a sacrificial layer," but rather claim "at least one passive electronic component arranged on the structured surface layer," which is clearly shown and described in the specification as element 31. (See Fig. 2).

The rejection under 35 U.S.C. § 102(b) should be withdrawn

The Examiner rejects claims 23-30 and 37 under 35 U.S.C. § 102(b) as being anticipated by Blayo. For the reasons stated below, Applicants submit that Blayo does not anticipate the amended claims.

The Examiner cites to Figures 1 and 2 of Blayo for teaching a device for determining an extent of undercut of a structured surface on a sacrificial layer. The Examiner points to workpiece 40 (the semiconductor device itself) in Blayo as the passive electronic component arranged on the structured surface layer for determining a physical measured quantity that is proportional to the extent of the lateral undercut. However, Applicants respectfully submit that the workpiece 40 (the semiconductor device) of Blayo is not the same as the passive electric component of the claimed invention. As stated on Page 2 of the specification of the present application, the passive electronic component is

delineated out from the surface layer and is used to determine a proportional quantity of undercut. Furthermore, as recited in the amended claims, the passive electronic component is shaped like a coil. Blayo does not teach or suggest such a passive electronic component which is delineated out of the surface layer, and moreover, the semiconductor of Blayo cannot be used to determine the proportional quantity of undercut. The device according to Blayo is used to measure the width of periodic features (Col. 2, lines 44-46) during an etching process. Applicants invention is distinctly different in that it measures the extent of undercut in a second etching process.

Since independent claim 23 is not anticipated by Blayo, and since dependent claims 24-30 and 37 contain all the limitations of independent claim 23, it is respectfully submitted that claims 23-30 and 37 are patentable over Blayo.

The rejection under 35 U.S.C. § 103(a) with respect to Claims 33 and 35-37 should be withdrawn

Claims 33 and 35-37 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blayo in light of Abidi. As the Examiner clearly acknowledges, Blayo fails to teach a coil shaped passive electronic component on a structured surface layer with a sacrificial layer forming a capacitor with a capacitance proportional to the extent of lateral undercut. The Examiner relies on Abidi for teaching a coil-like component having a first coil end and a second coil end on a structured surface layer including a sacrificial layer forming a capacitor having a capacitance proportional to the extent of the lateral undercut.

Initially, Applicants submit that Abidi is a non-analogous art. Abidi is directed towards a monolithic structure with enhanced self-resonance of an inductor for, in particular, RF-tuned amplifiers. (Col. 8, lines 35-44). While Abidi does disclose the method of fabricating such a device using etching or other micro-machining techniques, Abidi does not disclose a device for measuring undercut of a structured surface, as recited in the rejected claims. Abidi teaches a structure with reduced parasitic capacitance, not a device for determining the extent of undercut of a structured surface.

Moreover, Applicants submit one of ordinary skill in the art would not be motivated to combine the asserted references, and there is no suggestion in either reference to do so. In order to render obvious the claims at issue, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Blayo discloses a device for measuring and controlling line widths in periodic structures using spectroscopic ellipsometry, and Abidi discloses a monolithic passive component to increase inductance and reduce parasitic capacitance. Even if one of ordinary skill were to combine the pertinent structures of the two devices, the resulting combination would not approximate Applicants' invention. Applicants' invention measures the reduced capacitance from the undercutting of the sacrificial layer. Undercutting the dielectric layer 20 of Abidi would destroy the structure supporting the metallization lines (74 and 76). Since the asserted combination would render the combined prior art unsuitable for their original intended purposes, the obviousness conclusion is unsupported by the combined references. MPEP 2143.01.

More importantly, Abidi teaches away from a device according to Applicant's invention because Abidi teaches an etching process that uses the silicon dioxide layer as a mask during the etching process, in which only the silicon substrate gets etched not the dielectric layer. (Col, 6, lines 1-17). This is clearly different than the sacrificial layer of the Applicants' invention which is undercut during an etching process.

In view of the above, Applicants respectfully submit that claims 33, 35, 36 and 37, all of which ultimately depend on amended claim 23, are not obvious in view of the combination of Blayo and Abidi, and the rejection of claims 33 and 35-37 should be withdrawn.

The rejection under 35 U.S.C. § 103(a) with respect to Claims 38-42 should be withdrawn

Claims 38-42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Blayo in view of Abidi and further in view of Curran. Claims 38-42 depend from allowable claim 23. Applicants have explained above that the combination of Blayo and Abidi is insufficient to render obvious the parent claim 23. Furthermore, since Curran fails to remedy the deficiencies of Blayo and Abidi as applied against parent claim 23, the combination of Blayo, Abidi and Curran fails to render obvious dependent claims 38-42.

In addition to the above, Applicants submit that Curran is a non-analogous art. Curran discloses a semiconductor and a method of forming such semiconductor with an ohmic electrode inductively coupled to the semiconductor with a diamagnetic glass between the ohmic electrode and the semiconductor. One of ordinary skill would not be motivated to combine Curran with either of Blayo or Abidi merely because "silicon is highly useful in silicon-based solid-state electronic devices," or because "three dimensional passive electronic devices are desirable." The prior art reference must suggest the desirability of making the combination (MPEP § 2141), but the Examiner

makes no such showing. Applicants claim a device and a method for determining the lateral undercut in a structure surface, and the Examiner's reference to Curran's Figure 1 and a text portion that refers to the usefulness of silicon diboride as teaching all the limitation in Claims 38-42 is insufficient to support the obviousness conclusion.

For the foregoing reasons, Applicants respectfully submit that the rejection of Claims 38-42 be withdrawn.

The rejection under 35 U.S.C. § 103(a) with respect to Claims 43-47 should be withdrawn

The Examiner states that Nasserbakht discloses all the limitations of Claim 43 except for determining a physical measured quantity proportional to the extent of the lateral undercut, and the Examiner cites Blayo as teaching the determining of a physical measured quantity proportional to the extent of the lateral undercut. As a support for this assertion, the Examiner cites to Figures 1 and 3 of Nasserbakht. Applicants respectfully submit that the Examiner's blanket assertion that the claimed limitations are disclosed by Nasserbakht is unsupported and inaccurate.

Figures 1 and 3 of Nasserbakht do not disclose the claimed limitation of "performing a first etching operation to provide at least locally to the structured surface layer a structure including trenches, wherein the first etching operation includes the step of: locally additionally delineating at least one passive component out of the structured surface layer." The Examiner cites to "etching the oxide layer 34" in Nasserbakht as teaching this limitation. However, the oxide layer of Nasserbakht does not contain a passive component, and Nasserbakht fails to disclose an etching process for creating trenches and a passive electronic component in this layer. In addition, Nasserbakht fails to disclose etching the inductor layer, in contrast to the Examiner's assertion. According to Nasserbakht, the inductor is a metal trace above the oxide layer (Col. 2, lines 11-23). Nowhere does Nasserbakht suggest or teach etching the metal trace. In fact, Nasserbakht teaches away from creating a passive component via etching.

Applicants submit that the Examiner's use of Nasserbakht is incorrect since it does not disclose what the Examiner purports. Further, Nasserbakht does not disclose undercutting a structured layer or suggest any method of measuring an amount of undercut. Lastly, nothing in Nasserbakht suggests combining the teachings of Blayo with Nasserbakht nor would one of ordinary skill be motivated to do so.

For the foregoing reasons, the rejection of claims 43-47 should be withdrawn.

The objection to claim 48 should be withdrawn

Since claim 48 depends on allowable claim 43, Applicants submit that claim 48 is allowable in its present form by virtue of its dependence.

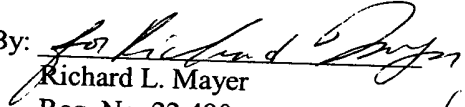
Conclusion

In light of the foregoing, Applicants assert that the present invention is new, non-obvious, and useful. Furthermore, all issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

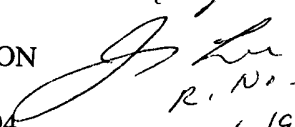
Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 23 and 33 as follows:

23. (Amended) A device for determining an extent of an at least locally lateral undercut of a structured surface layer on a sacrificial layer, comprising:
at least one passive electronic component arranged on the structured surface layer and in the shape of a coil for determining a physical measured quantity that is proportional to the extent of the lateral undercut.
33. (Amended) The device according to claim 23, wherein:
~~the at least one passive electronic component includes a coil delineated~~
out in the structured surface layer ~~and including~~ includes a first coil end and a second coil end,
the coil and a base layer arranged with respect to the structured surface layer and the sacrificial layer form a capacitor having a capacitance proportional to the extent of the lateral undercut.